

THE GRINDING CAPACITY OF

FRENCH BUHR MILL STONES

IS UNQUESTIONABLE.

WATEROUS ENGINE WORKS CO.,
BRANTFORD, CANADA.

NO. 11, 91.

© Todd
in Allentown

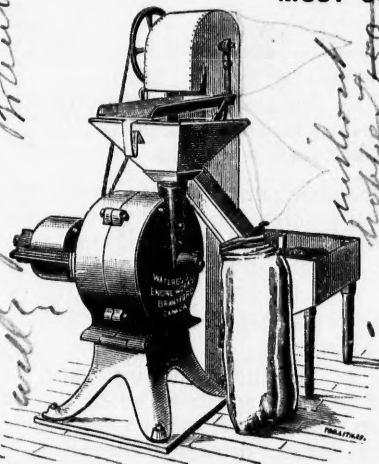
20th stair

WATEROUS ENGINE WORKS CO., BRANTFORD, CANADA.

1

The Improved Standard Chopper.

MOST SUCCESSFUL CHOPPER EVER BUILT.



Made in Two Sizes, using the very best old stock French Buhr Stones, 12 inches and 20 inches in Diameter.

By comparing this with the old cut of the 20 inch mill the improvements made will be apparent.

Elevators—are now together in one case, both running the same way, discarding the gearing formerly used to change the motion, with its noise and trouble.

Feed Hopper, Discharge Spout, and feed regulator to stones, are all on one side, making it easy for one man to attend to mill, having all these under his immediate control.

Regulating Screw alone is on the other side.

Improved Feed.—The old shaker and shoe are done away with, and a very positive feed put in, same as introduced on our 12 inch mills last year.

20 INCH STANDARD MILL WITH ELEVATOR.

Elevators—are driven with a round belt in grooved pulleys, making a solid drive and impossible to throw off.

Shaking Screen—is worked in a simple and effective manner, and is guaranteed to remove bolts, nails, stones, straws, etc., saving grinding surfaces from injury.

Improved 12 inch Standard Chopper

WITHOUT ELEVATORS.



We have made an entirely new set of patterns for the 12 inch mill, same as the 20 inch, introducing several new and valuable features.

The Force Feed is on the same principle as the feed of the 20 inch mill. Silent but positive, it will feed through anything that should go through a mill. This feed does away with the shaking shoe feed, the only source of trouble in the old mills.

Detachable safety bridge tree supporting outer box of spindle enables an endless belt to be used.

The Steel Spindle runs on long heavy bearings, with oil reservoirs fully protected from grit, and has a self-cooling oil step and safety spring box and set lever which admit foreign substances to pass through without damage to stone faces.

It will be noticed that the mill is higher than the old pattern. Makes it more handy to receive the grain, and attach elevators when desired.

This is the Special Farmers' Mill, grinds 12 to 15 bushels per hour, simple, easily managed, grinds fine or coarse, and gives perfect satisfaction. Can be run by 2 H.P. up to 10 H.P., with engine, horse power or wind power.

The Popularity of these Mills

ARISE FROM

THEIR GREAT SIMPLICITY,

Being readily worked by any intelligent man.

THEIR DURABILITY.

There being hardly anything to get out of order ; nothing wears but the face of the mill stone, and these are readily sharpened and kept in order by the regular use of the mill picks furnished with the mill. The simple directions given will enable any ordinary man to become an expert at this work in a short time. **The Stones** will last for many years with ordinary care.

GREAT CAPACITY.

For its price and size this Mill cannot be equalled as a **Grinder**. Thirty-five bushels of chop per hour is not an infrequent output for a 20 in. Mill and 12 H.P. Fire Proof Champion.

The Improved Elevator Attachment

Is well represented in the cut. Grain is emptied from bag into the hopper on the right, and from there elevated and discharged on to the screen, thence into the hopper over the mill. After grinding, the meal discharges into the other elevator, which elevates it and delivers it to the bag hung from the spout. When a bag is full the slide is closed while another bag is hung on the spout.

With elevator attachments ONE MAN can readily attend to the chopper and run the engine.

We are often asked to guarantee a certain amount of work with a certain power with these mills.

A moment's reflection will convince any one of the impossibility of our doing this, owing to the numberless conditions, such as if ground fine less can be ground than if coarse, or it takes more power. Damp, wet grain will paste and stick more than dry, and does not grind so freely. Stones may be dull and need sharpening, or the centre may be worn flat and not kept hollowed out. When we first send out a mill it gets dull and wears flat in the centre sooner than after a few weeks run, as the stone has not come down to the perfect solid face it gets from use.

The Grinding Capacity of an "Old Stock French Buhr" is universally known, it having been in use for ages, and needs no recommendation from us. Ask any miller, and they will tell you it is the best Grinder known.

Our arrangement of stones and case permit of more rapid feeding, grinding and delivering, without heating. We have never had a Standard Mill returned because it did not please the purchaser and do all that we recommended.

12 inch Improved Standard Mill, with Double Elevators, Shaking Screen, and two Picks.....	\$100 00
20 inch Improved Standard Mill, with Double Elevator, Shaking Screen, and two Picks.....	200 00

If Double Elevators are not required, deduct from either
of above prices \$25.00.

For Prices of Larger Under Runner Mills, see page 12.

The Universal Verdict.

Alexander Mustard, Brucefield, writes, January 16th, 1889—

Gentlemen,—I am well pleased with the 20-inch Standard Chopping mill, it does very good work and very fast, as we run it at 1,000 revolutions per minute.

J. Merrick, Newton Robinson, writes, December 31st, 1889—

We have been running one of your 20-inch Standard Choppers for four years. Have chopped over 1,200 tons, but stand, cases, shaft and pulleys are as good as ever.

John Langdon, Petherton, writes, February 19th, 1890—

Your Chopper works complete, far ahead of any chopper I have yet seen.

E. F. Whipple, Dunrobin, writes, December 31st, 1889—

Dear Sirs,—Yours of the 23rd to hand and in reply would say I like your 20-inch Chopper well. It runs complete and does its work well. You wanted to know what quantity I could grind. I can grind on an average 20 bushels per hour. I suppose the grinder would do more if I had the power. My engine is 6x9 cylinder, hardly strong enough, but it does all I have to do. There has been a lot of those iron grinders through here, and people have got disgusted with them and I am beginning to do better.

James McAuley, South Indian, writes, October 20th, 1889—

I am well pleased with the 20-inch Feed mill, it is giving perfect satisfaction.

James McNally, of Vars P. O., Ont., writes, April 28th, 1890

Gentlemen,—Inclosed find Fifty-five Dollars to pay balance on Chopper. Please return note and oblige. P. S.—The Chopper is a dandy.

WATEROUS ENGINE WORKS CO., BRANTFOLD, CANADA.

J. O. Hallman, of New Dundee, writes, Dec. 19th, 1888 :

We got the 30-inch Automatic Balance Under Runner Chopper purchased of your house on the 17th inst. We have it running now and it seems to work splendidly. The pulley on driving shaft is about same size as pulley on stone and does not speed it over 200 revolutions per minute.

John Morgan, of Springbrook, writes, Dec. 30th, 1890—

Gentlemen,—In reply to yours of the 25th, I must say that the 20 inch Standard Chopper, with elevators, that I got from you has given good satisfaction. It went through the fire and came out all right and I have ground 40 bushels per hour with it. I do not think it can be beat for quick and good work.

Fred. Padfield, of Fennells, Ont., writes, May 13th, 1890—

Gentlemen,—The 20 in. Standard Chopper which I purchased from your agent, Mr. Ward, has given me entire satisfaction. It will do equally as good work as can be done in the large mills.

David Dean & Son, of Jordan, write, May 22nd, 1890—

Gentlemen,—In reply to yours of April 20th, would say we like the 20 in. Chopper well. We have not been disappointed in it in any way. It grinds good and fast.

R. D. Mann, Ottawa, writes, March 5th—

Gentlemen,—The Chopper works like a charm. Borroughs is highly pleased. You said he could not run chopper satisfactorily with 16 feet of belt, but does so and it is speedier than you advertise. With six horses he ground 18 bushels per hour without hurting horses.

Marsden Smith, Brussels, writes, Nov. 8th, 1890—

I enclose \$63, second payment on chopper. I certainly never paid for anything more cheerfully than I pay for this 20 INCH MILL. It surpasses my expectation every way, and is beyond the representations of your agents. It does seem to me it must require a wonderful stretch of conscience for these Iron Plate Machine fellows to claim they have the best chopper on earth. Surely they never saw your Standard Mill running. (Mr. Smith had an Expensive Iron Plate Mill previous to the Standard.)

THE 20 INCH CHOPPER.

Wm. Hastings, of Crosshill, writes, June 25th, 1891—
Waterous Engine Works Co., Brantford, Ont.,

Dear Sirs,—The 20 inch Chopper with elevators and shaking screen which I purchased from you four years ago, I have run ever since with a great deal of satisfaction, and have brought it to-day to your shop for the first time for repairs. The mill now requires only the stone, fixed in the case, set out. I run with my 16 h-p. Champion engine and do a very good business every fall grinding on an average about 6000 bags of grain each year, for which my price is 7 cents per bag. I have run the chopper myself without any previous knowledge to what I have picked up since I got it. I find no difficulty in keeping the stones in order, and have frequently timed the mill and found that we have ground at the rate of about 20 bags per hour. This would be the average sized bag, at least holding $2\frac{1}{2}$ bushels or more. It requires two men, or one man and a boy to grind successfully, as when grinding as fast as mentioned above, the mill takes one man's attention. My stones during the above period have worn down about one inch. I am quite satisfied with the chopper and have found it a good investment.

WHO SAYS PORTABLE SAW MILLS WILL NOT PAY?

Turin Essex Co., April 13th, 1891.
Waterous Engine Works Co., Brantford,

Gentlemen,—It may be gratifying to you to hear that notwithstanding the hard winter that I will be in a position by the middle of May, to pay all obligations falling due this year, which I purpose to do.

I have in pile ready for delivery free of encumbrance early in May, the following quantities and kinds of lumber:

White Ash.....	10,000 ft.	at \$24.00.....	\$240
" " " " " "	" " " "	" 20.00.....	120
Black " " " "	6,000 " " "	" 15.00.....	30
" Cherry.....	2,000 " " "	" 55.00.....	110
			<hr/>
			500

I have about \$150 on book, and am now moving to a new skid containing 125,000 ft. and am in receipt of a letter from a stationary mill man whose logs were held up for want of snow, asking me to move during the summer and saw somewhere in the neighborhood, of 300,000 ft., so you see I have fair prospects still ahead for some time.

Respectfully yours

J. W. MISNER.

MODE OF DRESSING AND FACING

THE 12 AND 20 STANDARD MILLS.

POSITIVE DIRECTIONS.

- 1st. When the stones require dressing, run the faces together for a short time, not to exceed a minute, then take them apart, turn them to the light, glance across the faces and observe whether the glaze is perfect on every part of all the lands.
- 2nd. If the glaze shows uneven lands, that is the stones have touched each other only here and there at high spots, pick off the higher parts carefully, bolt the mill together again, and grind the faces a little more, then take them apart and examine the gloss or glaze. If not perfect pick and grind again, and repeat the operation until every inch of land surface on both faces from the middle of stones to skirt show glaze, then the stones are perfectly faced, and ready for furrowing and cracking.
- 3rd. Deepen the furrows to suit the work, carefully pick the glazed lands over if there is not enough of grit to them. Then bolt the mill together and the operation is complete. **Great care must be taken** to keep the bosom or centre of stones lower than skirt; they should be $\frac{3}{16}$ to $\frac{1}{4}$ inch apart in centre and taper from that to nothing half way to the skirt, and from there out flat. The skirt does the grinding and wears away faster than the bosom, so the bosom must be picked more than the skirt to keep it low, **and when new** this is especially necessary owing to the skirt wearing faster till it comes down to a good face.

OBSERVATIONS.

A STATIONERY bed and rigid runner, set vertically, must face themselves, as they are at right angles to the spindle. The faces must be trued in relation to each other by grinding and running together, and not by the red staff, **which only trues a face in relation to itself.** In grinding the stones together care must be observed, otherwise they may be burned.

The burrs, when faced in this manner, are so true that they will run together within the thousandth part of an inch, and not touch.

Dressing and facing have two different meanings by this system of milling. Facing means picking and grinding together until true land is discovered. Dressing is merely cutting the furrows, cracking the glaze, and opening the bosom according to the kind of material ground. The whole craft of millers are skilfully trained to face with the red staff, hence many of them do not understand why these mills require a different method.

Grinding and glazing take the place of the red staff; hence the skill necessary to true a face is merely that of being able to tell a dead spot from a polished one.

This method of facing is a natural one. It is economical, it obviates the necessity for great skill, and accomplishes the object perfectly. The red staff may be used in this method of facing as a straight edge only to place across the stones to determine whether the bosom is sufficiently hollow. Therefore discard it as a means of truing the stones, no matter what experts say to the contrary.

Cracking the Glaze.

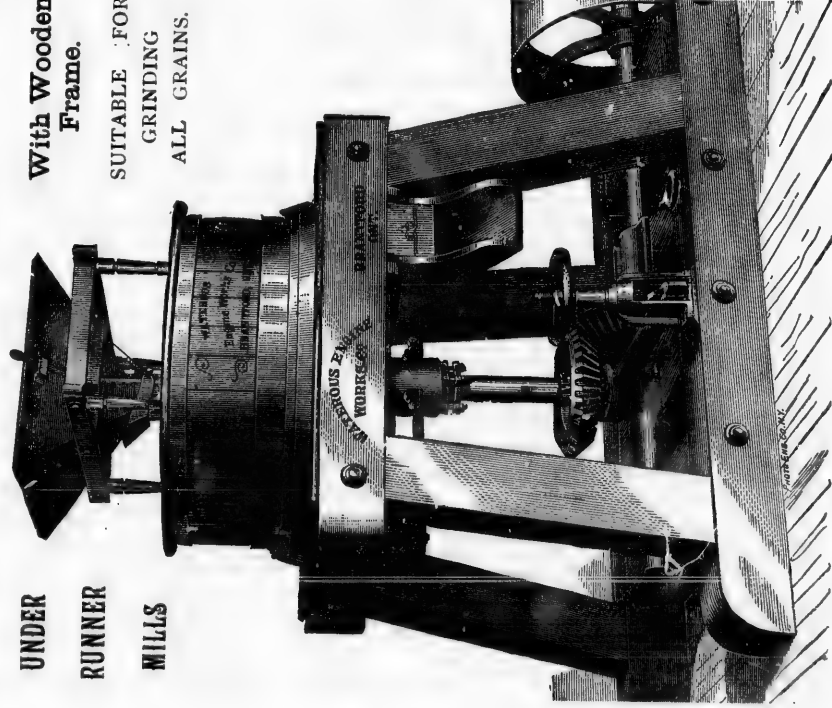
For flouring purposes, pick the glaze very fine, and keep the furrows straight and smooth. For cornmeal, crack the glaze a little rougher, and make deeper furrows; keep the bosom at the eye low—make it shallow for flour and deeper for cornmeal. **Keep the furrows and dress same as when received.**

Improved Automatic Balance¹⁰

**UNDER
RUNNER
MILLS**

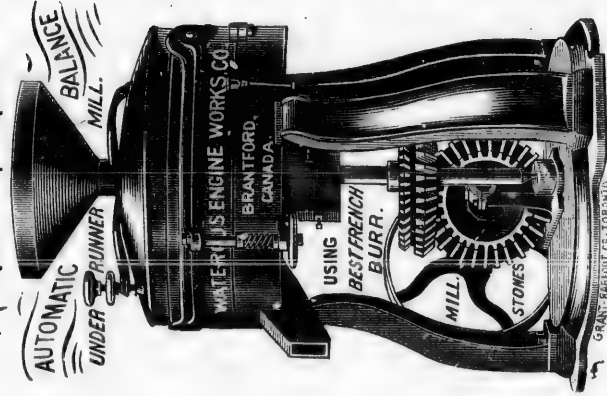
**With Wooden
Frame.**

**SUITABLE FOR
GRINDING
ALL GRAINS.**



Made in 30 and 36 inch, above style. All over 36 inch are made top runner.

WATEROUS IMPROVED



When preferred we can make 30 inch stones with iron frames as in cut, using a silent feed.

This takes up somewhat less room than the wooden frame, but is no better, and if no special need for an iron frame would recommend the wood frame.

Our Improved Mode of Hanging Under Runner Mill Stones.

The improvement consists in hanging the upper stone in a ring, which is itself hung at opposite points to standards, thus making a universal joint, allowing the stone to accommodate itself perfectly to the runner. The under stone, or runner, is faced true and set in a cast iron plate with eye, which is bolted firmly to the back of stone. The stone is then clamped to face plate of lathe, and the centre bored out true with face, then keyed firmly to spindle and balanced. This necessitates the runner being perfectly true, so that with the universal joint, in which the upper stone is hung, it is impossible to get stones out of tram or balance.

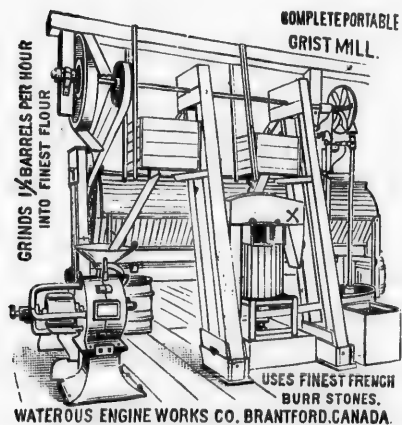


Table of Capacity, Dimensions and Power Required for
Under Runner Mills.

Diameter of Stone.	Bushels of Corn ground per hour.		Bbls. of Flour in 10 hours.	Horse Power required.	Dimensions over all when hurst frame is built of wood.				Size of Pulley.		Revs. of Pulley per min., Double Geared.	Approximate Weight in Pounds, Double Geared.	Revs. of Pulley per min., Single Geared.	Approximate Weight in Pounds, Single Geared.	PRICE.	
	Fine.	Coarse.			Length, D'ble Geared	Length, S'gle Geared	Width.	Height.	Diameter.	Face.					D'ble Geared, wood or iron frame.	S'gle Geared, wood or iron frame.
30 in	20	25	15	8 to 15	6 0 4	6 4	4 6	6	20	10 1/2	160	2,500	375	2,400	\$250	\$225
32 "	22	28	15	8 to 15	6 4 4	8 4	6 6	6	20	10 1/2	160	2,650	360	2,500	275	250
36 "	25	35	18	10 to 20	6 8 5	0 4	8 7	0	24	10 1/2	160	3,500	330	3,300	300	275
42 "	28	50	20	10 to 20	7 6 6	2 5	10 7	0	27	10 1/2	120	4,950	250	4,600	325	300

For Prices of Standard Choppers see page 4.

STANDARD PIONEER PORTABLE GRIST MILLS.



No. 3 Standard Pioneer Mill.

inch mill, so that no counter shaft is necessary, and only the main driving belt and one other is needed to operate mill. Delivered f. o. b. cars for \$475.

Every Mill Set Up in Our Works
Before Shipping.

No. 1 Standard Pioneer Mill

CONSISTS of Standard 20 inch Mill, with best French Buhr Millstones. Adjustable Base, Conveyor and Elevator complete, with belt and cups, bolt chest 12 feet long, reel covered with the best Dutch Anker silk cloth, flour conveyor and spouts, half dozen mill picks, all internal chain belts as shown in cut, being the same as No. 3 Mill, without Smut Mill, counter Shaft and Wheat Elevators and their connections, but arranged so bolt chest, elevator and conveyor are all driven from the spindle of 20

NO. 3

STANDARD PIONEER MILL.

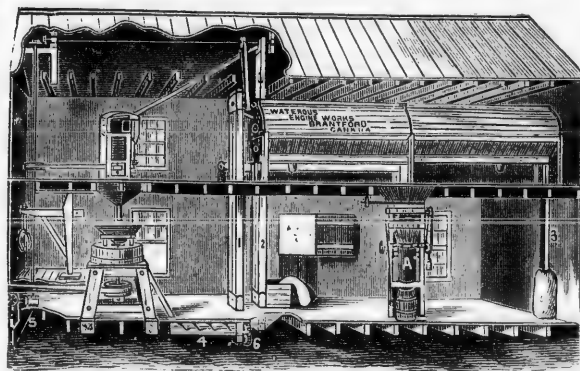
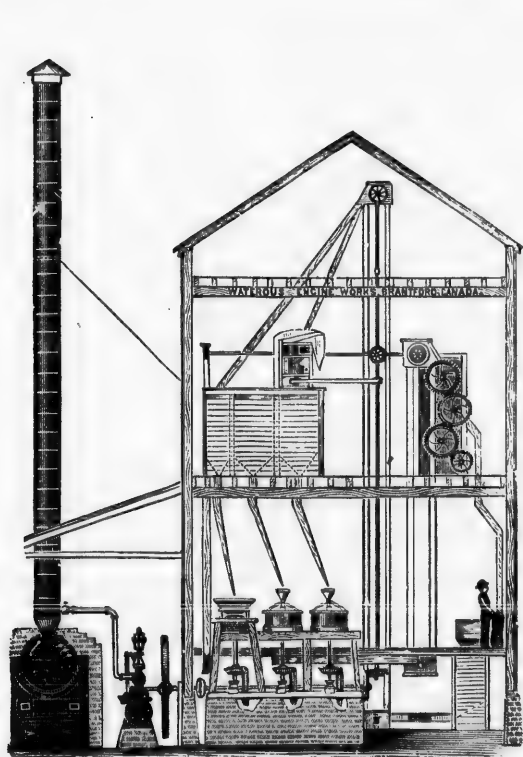
THE same mill as No. 1, but in addition an oo Smut Machine, two Elevators 18 feet high, complete with heads, feet and legs, belts and cups, counter shafts and pulleys to drive elevators, upright shaft and step, with bevel friction and arrangement to throw in and out of gear, with belt and pulley to Smut Machine, and pulley 48x5 on counter shaft to receive driving belt (counter shaft should run 60 revolutions per minute), bolt chest made 16 feet long and return conveyor to spout middlings into elevator to be rebolted, being complete mill as shown in cut, and has in addition a cooler conveyor over top of bolt chest into which elevator discharges. \$650.

These Mills are suitable for Wheat, Rye or Buckwheat flour. They will not of course compete with roller process mills, but they make a fine, white, wholesome flour, well graded. They will be found a great acquisition to new settlements, producing flour at low cost, saving the great expense of sending wheat off long distances to be ground and returned as flour.

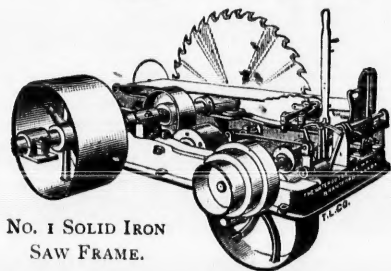
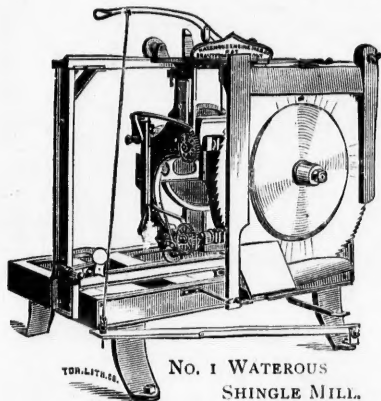
Large Stone Grist Mills, and 25 to 100 Barrel Roller
Process Mills Furnished.

PRICES ON APPLICATION.

STATE POWER TO BE USED OR NEEDED.



BRANT BRANTFORD CANADA



Keep Your Engine at Work.

YOU will find an investment in a Chopping Mill, Shingle Mill, Lath Mill or Saw Mill a very profitable undertaking for utilizing your threshing engine during the winter and spring. Why should you let an engine costing \$750 to \$1200 stand idle nine months in the year, when by investing \$200 to \$600 you can keep it profitably employed, and make more money as a rule than by threshing, and get returns promptly.

WITH A CHOPPER

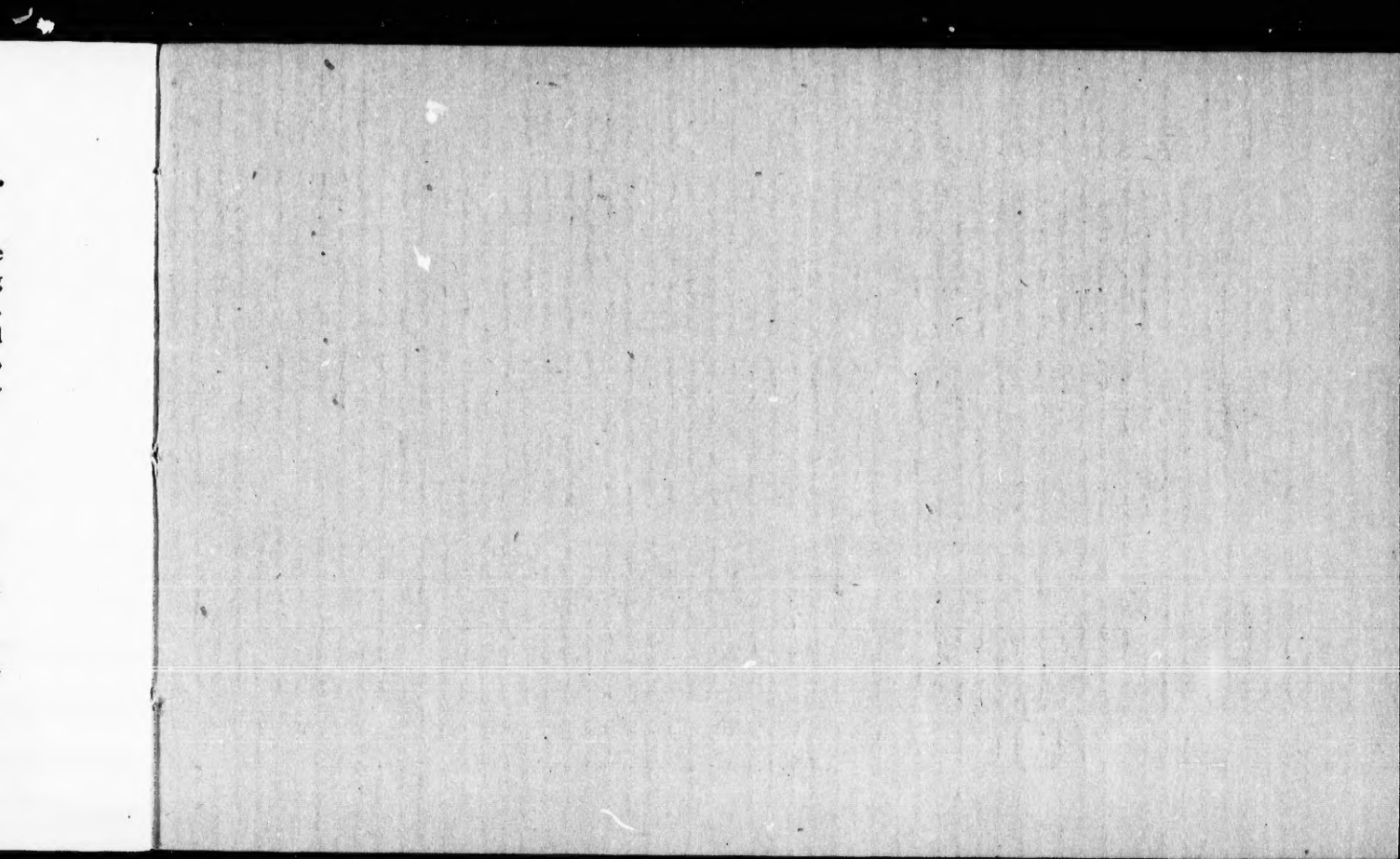
You can earn \$10 to \$15 per day, at slight expense, and probab'y run three days a week.

Cutting shingles by the thousand, at 90 cents, should bring you \$10 to \$13 per day.

Cutting lumber by the thousand at from \$2.50 to \$4.00 should bring you in, even with a 12 h.p. engine, \$7.00 to \$12.00 per day.

It will pay you to investigate this matter.

WATEROUS ENGINE WORKS CO., Brantford.



SHOULD YOU BE THE OWNER

**OF STEAM, WATER, WIND OR HORSE POWER
OR OF STOCK TO FEED,**

IT WILL PAY YOU TO EXAMINE THIS BOOK.

